

High ESD-Protected, Fail-Safe, Single Supply RS-232 Transceivers

Description

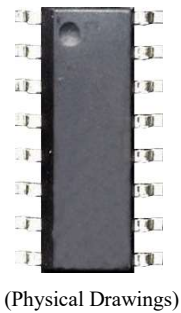
The RS232 series are low power single supply RS-232 interface. The device consists of two line drivers, two line receivers, and dual charge pump circuit. The device meets the requirements of TIA/EIA-232 standard and provides the electrical interface between an asynchronous communication controller and the serial-port connector.

The on chip charge pump and four small external capacitors act as onboard DC-DC converter, allow chip operated from single 5V supply, eliminating the need for $\pm 10\text{V}$ power supplies, reduce cost and board space. The device operates at data signaling rates over 250kbps. The slew rate of driver is set internally less than $30\text{V}/\mu\text{s}$ and the receivers feature internal noise filtering, eliminating the need for external slew rate and filter capacitors for reliable operation. The driver inputs and receiver outputs are TTL and CMOS compatible. RS232 comes in 16-pinSOP and TSSOP packages, operating over the commercial and industrial temperature ranges.

The ESD tolerance has been upgraded on these devices to over $\pm 15\text{kV}$ for both Human Body Model and IEC61000-4 -2 Air Discharge Method, without latch-up. The device operates with four $0.1\mu\text{F}$ capacitors, reduce system cost and board space.

Features

- ESD Protection for RS-232 Bus Pins up to $\pm 15\text{kV}$ Human Body Model
- Single +5.0V Power Supply
- Low Power, ICC 15mA Maximum
- Operates up to 250kbps
- Receiver Noise Filter
- Latch-Up Performance Exceeds 200mA



Applications

- Notebook and Palmtop Computers
- Battery-Powered Equipments
- Hand-Held Equipments
- POS Terminals

FUNCTION TABLES

Each Driver (1)

INPUT TnIN	OUTPUT TnOUT
L	H
H	L

(1) H = high level, L = low level

Each Receiver (1)

INPUT RnIN	OUTPUT RnOUT
L	H
H	L

(1) H = high level, L = low level

Typical Operating Circuit

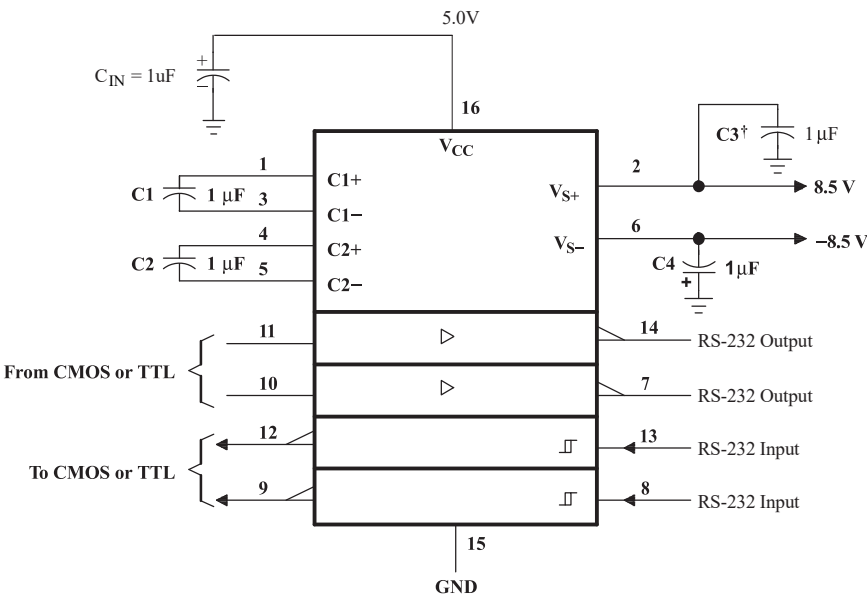
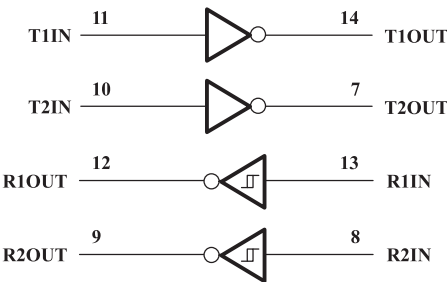
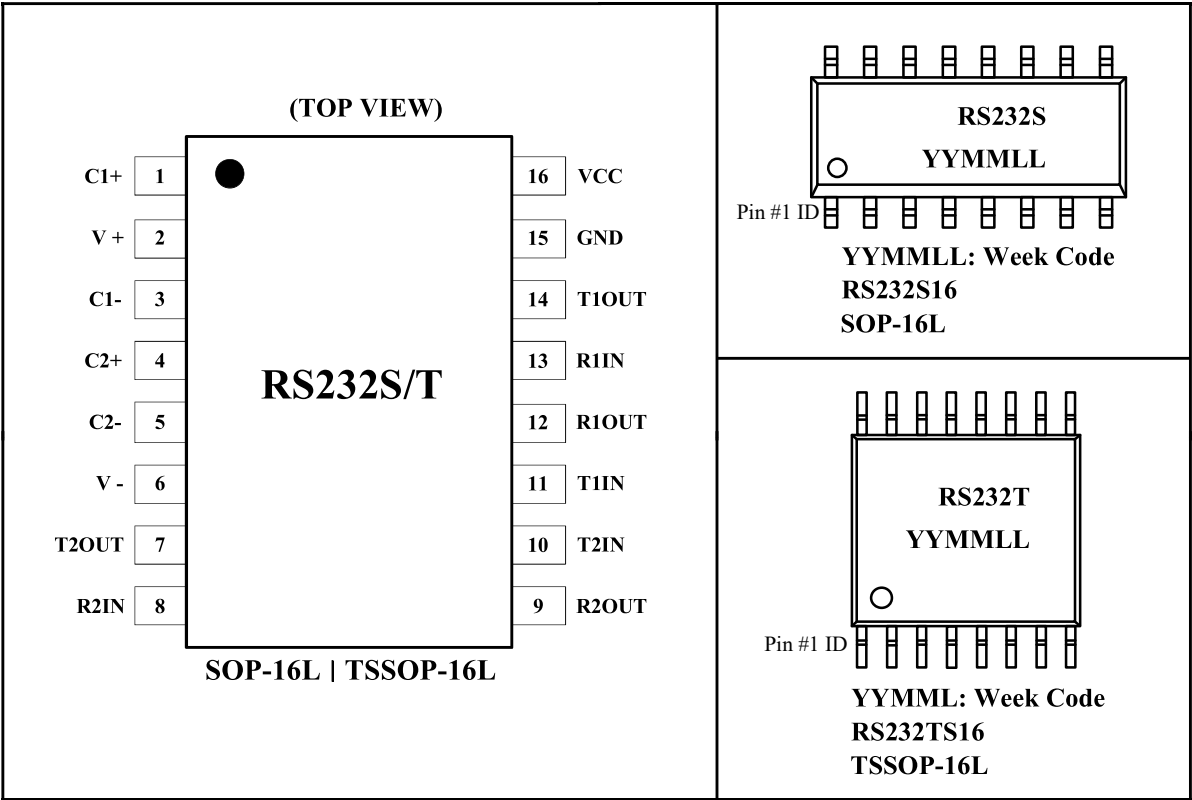


Figure 4. Typical Operating Circuit

LOGIC DIAGRAM (POSITIVE LOGIC)



Pin Configurations



Pin Descriptions

Pin No.	Pin Name	Function
SOP TSSOP		
1,3	C1+, C1-	Terminals for Positive Charge Pump Capacitor
2	V+	+2VCC Voltage Generated by the Charge Pump
4,5	C2+, C2-	Terminals for Negative Charge Pump Capacitor
6	V-	-2VCC Voltage Generated by the Charge Pump
7,14	T_OUT	RS-232 Driver Outputs
8,13	R_IN	RS-232 Receiver Inputs
9,12	R_OUT	RS-232 Receiver Outputs
10,11	T_IN	RS-232 Driver Inputs
15	GND	Ground
16	VCC	+4.5V to +5.5V Supply Voltage Input

Ordering Information

Part Number	Voltage Range	Features	Operating Temperature	Package Type	Top Mark	SPQ
RS232S16	4.5V ~ 5.5V	<ul style="list-style-type: none"> Single supply RS-232 interface TIA/EIA-232 standard 	-40°C to 85°C	SOP-16L	RS232S FH <u>X</u> <u>Y</u> <u>Z</u>	2500PCS/Reel
RS232TS16	4.5V ~ 5.5V	<ul style="list-style-type: none"> Operates up to 250kbps Icc 15mA(Max.) 	-40°C to 85°C	TSSOP-16L	RS232T FH <u>X</u> <u>Y</u> <u>Z</u>	3000PCS/Reel

Note:

- **RS232S/T** devices are Pb-free and RoHs compliant.
- The surface prints of our semiconductor devices are subject to change during the production process and do not involve changes in electrical parameters, and we will not separately state the notice.
- If you have any other custom purchase needs, please contact our sales department.



ESD SENSITIVITY CAUTION

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.



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